## **WE CLAIM AS OUR INVENTION:**

- 1. A luminophore plate comprising:
- a substrate;
- an auxiliary layer disposed on said substrate, said auxiliary layer being rastered to form a plurality of alternating nubs and trenches; and
- a storage luminophore layer applied on said auxiliary layer, said storage luminophore layer comprising luminophore needles of a storage luminophore formed on the respective nubs of said auxiliary layer by vapor deposition.
- 2. A luminophore plate as claimed in claim 1 wherein each of said nubs has a plurality of said luminophore needles formed thereon.
- 3. A luminophore plate as claimed in claim 1 wherein said auxiliary layer has a thickness in a range between 20 and 100  $\mu m$ .
- 4. A luminophore plate as claimed in claim 1 wherein said auxiliary layer is composed of a material having a coefficient of thermal expansion in a range between  $2.5 \times 10^{-5}$ /°C and  $4.7 \times 10^{-5}$ /°C.
- 5. A luminophore plate as claimed in claim 1 wherein said auxiliary layer is rastered with a grid dimension defined by said nubs and trenches in a range between 10 and 100  $\mu$ m.
- 6. A luminophore plate as claimed in claim 5 wherein each of said trenches has a width in range between 2 and 20 µm.
- 7. A luminophore plate as claimed in claim 1 wherein said auxiliary layer is composed of a plastic.

- 8. A luminophore plate as claimed in claim 1 wherein said auxiliary layer is composed of polyimide having a coefficient of thermal expansion in a range between  $3.1 \times 10^{-5}$ /°C and  $3.5 \times 10^{-5}$ /°C.
- 9. A luminophore plate as claimed in claim 1 wherein said auxiliary layer is composed of parylene C.
- 10. A luminophore plate as claimed in claim 1 wherein said auxiliary layer is rastered with a grid structure formed by said nubs and trenches that varies over a surface of said auxiliary layer onto which said storage luminophore layer is applied.
- 11. A luminophore plate as claimed in claim 1 wherein each of said nubs has a shape of an n-sided polygon.
- 12. A luminophore plate as claimed in claim 11 wherein n is between 3 and6.
- 13. A luminophore plate as claimed in claim 1 wherein said auxiliary layer is rastered with a grid structure of said nubs and trenches formed by a plurality of n-sided polygons.
- 14. A luminophore plate as claimed in claim 13 wherein n is between 3 and6.
- 15. A luminophore plate as claimed in claim 1 wherein each of said nubs has a shape of an n-sided polygon and wherein said auxiliary layer is rastered in a grid structure of said nubs and trenches formed by a plurality of n-sided polygons.
- 16. A luminophore plate as claimed in claim 15 wherein n is between 3 and6.

- 17. A method for manufacturing a luminophore plate comprising the steps of:
  - disposing an auxiliary layer on a substrate, said auxiliary layer having an upper surface facing away from said substrate;
  - rastering said upper surface of said auxiliary layer by forming a plurality of alternating nubs and trenches at said upper surface of said auxiliary layer; and
  - applying a storage luminophore layer onto said upper surface of said auxiliary layer by vapor depositing luminophore needles of a storage luminophore on each of said nubs.
- 18. A method as claimed in claim 17 comprising vapor depositing a plurality of said luminophore needles on each of said nubs.
- 19. A method as claimed in claim 18 comprising rastering said upper surface of said auxiliary layer with a grid dimension of said nubs and trenches in a range between 10 and 100 µm.
- 20. A method as claimed in claim 19 comprising rastering said upper surface of said auxiliary layer with said grid dimension in a range between 20 and 50  $\mu$ m.
- 21. A method as claimed in claim 19 comprising forming each of said trenches with a width in a range between 2 and 20  $\mu m$ .
- 22. A method as claimed in claim 17 comprising rastering said auxiliary layer with grid structure that varies over said upper surface of said auxiliary layer.
- 23. A method as claimed in claim 17 comprising forming of said nubs as n-sided polygon.
  - 24. A method as claimed in claim 23 wherein n is between 3 and 6.

- 25. A method as claimed in claim 17 comprising rastering said upper surface of said auxiliary layer with a raster structure comprising a plurality of n-sided polygons.
  - 26. A method as claimed in claim 25 wherein n is between 3 and 6.
- 27. A method as claimed in claim 17 comprising forming of each of said nubs as an n-sided polygon, and rastering said upper surface of said auxiliary layer with a raster structure comprising a plurality of n-sided polygons.
  - 28. A method as claimed in claim 27 wherein n is between 3 and 6.